

User's Guide

# Text-To-Speech

**BLASTER™**

**CREATIVE**  
CREATIVE LABS



**TEXT-TO-SPEECH**  
**User's Guide**

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Printed in Singapore.

Second Edition: July 1993

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## ■ Contents

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### Welcome

### Part I      **SBTALKER For DOS**

#### Chapter 1    **SBTALKER**

### Part II     **Monologue For Windows**

#### Chapter 1    **Overview**

#### Chapter 2    **Speech Generation Techniques**

#### Chapter 3    **Getting Started**

#### Chapter 4    **Using Monologue for Windows**

#### Chapter 5    **Advanced Operational Tips**

#### Chapter 6    **Programming With Monologue**

#### Chapter 7    **Using The Dictionary Manager**

### Appendices

#### Appendix A    **Problem Resolution**

#### Appendix B    **FIRST BYTE Phonetics**

#### Appendix C    **Technical Support**

## ■ Welcome

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Welcome to Text-to-Speech Synthesizer! With these talking utilities, the power of speech can now be added to DOS and Windows applications.

This guide includes the documentation of both SBTALKER and Monologue. It must be noted that they are optional bundled software and may be offered separately.

This guide is arranged as follows:

### **Part I: SBTALKER For DOS**

A text-to-speech program that runs under the DOS environment. Two application programs are included with SBTALKER: Read and Dr. Sbaitsos. Read is a program that is capable of reading any text entered while Dr. Sbaitsos is a program that uses artificial intelligence to answer any question posed.

### **Part II: Monologue For Windows**

A text-to-speech program that runs under the Windows environment. Monologue is capable of generating speech in almost any of the Windows applications.

## Conventions

The information in this guide follows certain conventions that are adopted to assist you in locating and identifying the information . These conventions are broken down into two sections:

### Keyboard Conventions

These conventions are made up of key combinations and key sequences.

Notation	Meaning
<Key1+Key2>	The plus sign (+) between Key1 and Key2 means that both keys have to be pressed simultaneously. For example, "Press <Control+Z>" means that the <Control> and <Z> keys have to be pressed at the same time.
<Key1,Key2>	The comma (,) between Key1 and Key2 means that the keys have to be pressed in sequence. For example, "Press <C,Return>" means that you press the <C> key and release it, and then press the <Return> key and release it.
< >	The characters enclosed in this "bracket" represents any of the symbols, letters and key names on the keyboard.
[ ]	The square bracket is used for indicating the optional parameters.

### Document Conventions

These conventions are adopted to provide consistent text formats and cues, and are designed to ensure that information is easily identifiable.

Type style	Meaning
<i>Italic</i>	Indicates any text supplied by you.
<b>Bold</b>	Command names, switches and any text that must be presented exactly as it appears.
ALL CAPITALS	Directory names, filenames, and acronyms.

## Notices

Three levels of notices might be used in this guide. They are as follows:



Used to emphasize an area of text.



Used to warn of undesirable procedures or of situations in which equipment damage could potentially result.



Used to denote an area of text where the information/instructions must not be taken lightly but should be noted/followed.

## ■ Part I

## SBTALKER For DOS

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## ■ Chapter 1 SBTALKER

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<b>Installing SBTALKER</b>	1-3
<b>Starting SBTALKER</b>	1-3
<b>Creating Echo Effect</b>	1-4
<b>External Memory Specification</b>	1-4
<b>Removing SBTALKER</b>	1-4
<b>The Read Program</b>	1-4
<b>Reading from DOS</b>	1-5
<b>Reading from Text Reader</b>	1-5
<b>Reading from ASCII Text Files</b>	1-5
<b>The Dr. Sbaits Program</b>	1-6
<b>Starting Dr. Sbaits</b>	1-6
<b>About Dr. Sbaits</b>	1-6
<b>Using HELP</b>	1-7
<b>Dot Commands</b>	1-7

## ■ SBTALKER

SBTALKER is a text-to-speech synthesizer program with an unlimited vocabulary that resides in memory. It reads ASCII text, performs functions on that data and outputs it vocally through the PC speakers. Two application programs are included with SBTALKER. They are as follows:

- Read** This program reads ASCII text files or text entered from the keyboard or through communications ports.
- Dr. Sbaits** A fun program that attempts to converse with you in English.

### Installing SBTALKER

Before installing SBTALKER, the audio card's software should have been installed according to the instructions outlined in your audio card's documentation. The SETUP.EXE program that comes with SBTALKER will install the software and utilities for SBTALKER. It also copies all the files to \SBTALKER directory.

To install SBTALKER:

1. Insert Text-To-Speech disk in the disk drive.
2. Type **SETUP**.
3. Press <Enter>.



SBTALKER must be loaded into memory before Read and Dr. Sbaits can run. The BLASTER environment string, which contains information on the hardware configurations, must be properly set up. (Refer to your audio card's documentation for more details.)

### Starting SBTALKER

To start SBTALKER:

1. Change to \SBTALKER directory.
2. Type **SBTALK**.
3. Press <Enter>.



**SBTALK** is a batch file (SBTALK.BAT) located in the SBTALKER directory. To run the program without the batch file, enter **SBTALKER /DBLASTER**.

## Creating Echo Effect

With SBTALKER, you have the ability to create an echo effect for any of the applications you are running.

To set echo effect:

1. Type **SET-ECHO [dddd]**.
2. Press <Enter>.

 *dddd* sets the delay time for the echo effect. The range is from 0 to 4,000. Entering 1000 provides a good echo effect with a 0.1 second delay. A delay setting of 500 produces a reverb effect.

## Extended Memory Specification

SBTALKER automatically loads itself into Expanded Memory Specification (EMS), if the proper EMS driver is installed in the system. The usage of Expanded Memory is advantageous because it can hold a larger amount of text, allowing for faster access of data and minimizing breaks between various text.

SBTALKER is compatible with most EMS drivers in the market. However, if you have one that does not work properly with SBTALKER, it may be necessary to remove the EMS driver to run SBTALKER.

## Removing SBTALKER

SBTALKER stays in memory until you remove it or reboot the system. You may not be able to run other applications with SBTALKER still in memory.

To remove SBTALKER from memory:

1. Change to \SBTALKER directory.
2. Type **REMOVE**.
3. Press <Enter>.

 To effectively remove SBTALKER, it must be the last program loaded into memory.

## The Read Program

The READ program can read ASCII text files or text typed from the keyboard. Text can be entered in either upper or lower case. The three ways of reading text are as follows:

1. DOS command
2. Text Reader
3. ASCII text files

## Reading From DOS Command

To read text from DOS command:

1. Type **READ [any\_text]**.
2. Press <Enter>.

This command will instruct the program to read the text specified in [any\_text]. Once the text is read, it will return to the DOS prompt.



You do not have to include the quotation mark when typing the text.

To have the program say "Hello, how are you?" for example, at the DOS prompt:

1. Type **READ "HELLO, HOW ARE YOU?"**.
2. Press <Enter>.

You will hear "Hello, how are you?" from your PC speakers.

Now try typing "**READ 'HELLO, HOW ARE YOU?'**" (without the quotation mark) and press <Enter>. Notice any difference in the output?

## Reading from Text Reader

To read text from Text Reader:

1. Type **READ**.
2. Press <Enter>.

The Text Reader will wait for text to be entered from the keyboard before echoing it out to your PC speakers. To stop this program, press <Control+Z> or <Control+C>, followed by <Enter>. You will return immediately to the DOS prompt.



You need not worry about having to call up the READ command while you are in the Text Reader.

## Reading from ASCII Text Files

To read text from ASCII text files:

1. Type **READ <piped\_input [/w]**.
2. Press <Enter>.

This command-format instructs READ to get its input from another source other than the two ways mentioned earlier. The source is an ASCII text file from which text is piped into the Read command. This file, specified by *piped\_input*, can be any text file. This program will read any text within this file and terminate when it reaches the end.



The */w* option displays text being read.

An example of such an entry format is as follows:

1. Type **READ < SBTEST.TXT /w**.
2. Press <Enter>.

The program will begin reading the text that is present within the file SBTEST.TXT when displayed on the screen. To stop this program, press the <Esc> key.

 SBTEST.TXT is an ASCII text file supplied with the software. However, you can ask it to read any ASCII text by entering the path where the file is located.

### The Dr. Sbaits Program

The Dr. Sbaits program makes use of artificial intelligence when responding to your queries. Like a personal consultant, Dr. Sbaits will answer any question posed or try to solve your problems. Dr. Sbaits uses a synthesized voice to reply as he attempts to solve your problems.

### Starting Dr. Sbaits

To start Dr. Sbaits:

1. Change to the \SBTALKER directory.
2. Enter **SBAITSO2 [/s] [/40]**.
3. Press <Enter>.

/s and /40 are optional parameters. /s sets Dr. Sbaits to run in stereo and echo modes. /40 sets the screen to a 40-column mode. An example would be **SBAITSO2 /s /40**.

 Before you can run Dr. Sbaits, you need to have SBTALKER loaded into memory.

### About Dr. Sbaits

Dr. Sbaits is more enjoyable if you try to find ways to make the doctor understand you by using key phrases. Dr. Sbaits will try to satisfy your questions. However, he performs best when you talk about your problems and use complete sentences.

We do not want to spoil your fun by telling you too much about Dr. Sbaits. You can have more fun exploring Dr. Sbaits yourself. If you want Dr. Sbaits to repeat a response, press the <R> key.

To make the conversation more interesting, use the **ECHO ON** command (See "Dot Commands"). This will cause the program to say what you type using a different voice. Dr. Sbaits can also perform some simple mathematics.

### Using HELP

If you feel that you are not getting much help from Dr. Sbaits, type in the word **HELP**. If an error occurs stating that no help is available because the screen is in the 40-column mode, switch to the 80-column mode as instructed by Dr. Sbaits. Once in the 80-column mode, the **HELP** option will be available.

By simply pressing <Enter> without entering any information, you will prompt the good doctor to reply. Try it.

Once you are in the **HELP** screen, the first thing you see is a brief introduction of Dr. Sbaits. It will outline the uses of the various dot commands used in this program. To get more information, simply press <M> (for more) and then <Enter>. From the information, you will come to understand why Dr. Sbaits replies the way he does, or more precisely, where he gets his replies from.

### Dot Commands

The table below lists the various Dot commands used in Dr. Sbaits.

<b>.QUIT</b>	Quits the program. (You can also quit by typing <b>BYE</b> or <b>GOODBYE</b> .)
<b>.READ</b>	Reads an ASCII text file. Format: <b>.READ filename</b> .
<b>.TONE t</b>	Sets the tone. t is either 0 (Bass) or 1 (Treble).
<b>.VOLUME v</b>	Sets the volume. v ranges from 0 (Softest) to 9 (Loudest).
<b>.PITCH p</b>	Sets the pitch. p ranges from 0 (High) to 9 (Low).
<b>.SPEED s</b>	Sets the speaking speed. s ranges from 0 (Slowest) to 9 (Fastest).
<b>.PARAM tvps</b>	Sets tone (0 or 1), volume (0 to 9), pitch (0 to 9), and speed (0 to 9).
<b>.ECHO ON</b>	Reads what you type. <b>ECHO OFF</b> will turn it off.
<b>.COLOR x</b>	Sets the background screen color. x ranges from 0 to 7.
<b>.WIDTH 80/40</b>	Sets screen width to 80 or 40 columns.
<b>.MASTER m</b>	Sets master volume. m ranges from 0 (Softest) to 15 (Loudest).
<b>HELP</b>	Enters the help mode.

**■ Part II      Monologue For Windows**

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## **■ Chapter 1 Overview**

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<b>Uses of Monologue for Windows</b>	<b>1-4</b>
<b>Multimedia Extensions Environment</b>	<b>1-5</b>

## ■ Overview

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Congratulations! You've just purchased the only PC software product which can add the element of speech to virtually every Windows application. No speech recording or "training" is necessary. Monologue for Windows offers:

- Versatility** - It allows any application, which can internally express its data in text, to speak that data.
- Flexibility** - You can utilize Monologue for Windows to speak data transferred to the clipboard or use the sophisticated DDE or DLL interfaces to customize your favorite Windows applications.
- Easy to Use** - It's a background application, much like a screen saver, so it's always there when you want it. Powerful resource management support ensures that Monologue for Windows can work with even your most memory intensive Windows applications.
- Productivity** - Now your ears can assist you in providing that extra degree of confidence. Your document says what you really want it to say.
- Affordability** - A patent protected software approach eliminates the need to add expensive hardware.

To get the most from Monologue for Windows, you will need to understand some of its basic concepts. Please take a few moments to familiarize yourself with the information in this section and refer back to it before using any of Monologue for Windows' more advanced features.

## Uses of Monologue for Windows

Monologue for Windows' extensive flexibility makes it the perfect companion to many of your favorite Windows applications. Now your applications will contain voice-power so your ears can complement the productivity of your eyes and hands.

The following ideas are just some of the uses of your new talking utility:

- The power of speech can now be easily added to your repertoire of popular Windows applications like Ami, Word for Windows and Excel just to name a few.
- Monologue for Windows' broad range of capabilities are coupled with an easy-to-use interface to extend its powerful features to both the casual user, the experienced programmer, and anyone in between.
- By simply highlighting a row, column, paragraph or document, or by using either the powerful DDE or DLL interfaces, you can now add voice-power to your applications. The days of painful comparisons of the computer screen and your paperwork are over. Anxieties can now be reduced due to this enhanced document control.
- Any individual that uses a personal computer running Windows for word processing, spreadsheets, electronic mail, or just enjoyment can now use Monologue for Windows to enhance their personal computer use. Monologue for Windows is an extremely flexible tool which will allow you to have the power of speech in almost any of your Windows applications.
- Frequent users of word processors recognize the value of spell checkers. Unfortunately, spell checking only verifies the existence of a word, not its appropriateness. Many times important parts of speech or grammar are incorrectly used or accidentally omitted in a document. Hearing the document spoken can be an invaluable aid in ensuring it is grammatically correct. When an inconsistent sentence or a grammatically incorrect phrase is spoken, your ears assist your eyes in proofreading your document.
- With Monologue for Windows, "background" listening is now a reality. Like listening to a radio program, you can have your computer speak any document while you perform other activities. Similarly, use Monologue for Windows to assist in sifting through electronic mail with your ears while your eyes and hands are free to attend to other tasks.
- More sophisticated users can enhance their personally developed applications by making calls to the DLL interface. Extend the macro power of your applications by defining macros which interface to either the DDE or DLL interfaces to the provided speech engine. Now you can easily "hear" any spreadsheet value which changed due to a formula value change without having to "page" your way to see the significance of the change.
- Programming enthusiasts can utilize the natural interface of speech by interfacing to any of the popular programming tools used to create Windows applications. Any pronounceable combination of letters or numbers will be spoken with ease and clarity. SmoothTalker technology will allow you to call the speech engine as you would any other Windows function. Refer to the Programming Interface section for more details.

- Monologue for Windows allows you to select the pitch, speed and volume at which your selections will be spoken. The sophisticated Dictionary Manager allows you to save your own preferred pronunciations of words and abbreviations. In addition you may maintain several dictionaries and easily change the currently active dictionary using the Dictionary Manager.

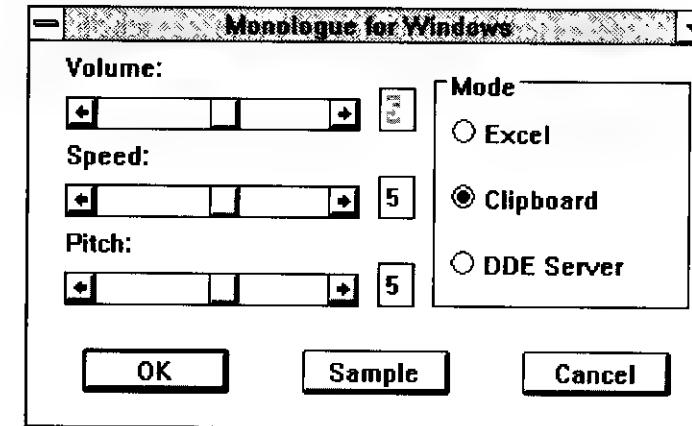


Figure 1-1: Preferred Speech Dialog Box.

## Multimedia Extensions Environment

Monologue for Windows uses the capabilities of any available Wave Audio device installed for Multimedia Windows. This hardware configuration provides optimal functionality with hardware independence and coordinated allocation of system resources and time synchronization capabilities.

- All requirements for the standard environment PLUS properly installed and configured Multimedia Extensions for Windows 3.0 or Windows 3.1.
- Properly installed and configured Wave Audio Device (i.e. Creative Labs Sound Blaster audio adapter).



The documentation and software provided in this release of Monologue for Windows precedes the general availability of the Multimedia Extensions for Windows. While all reasonable efforts have been made to assure that the provided software will function properly with the release version of the Multimedia Extensions, there is a remote possibility that last minute changes will render Monologue for Windows inoperative. In this case contact First Byte for an updated version of the Multimedia Extensions drivers and libraries.

## **■ Chapter 2 Speech Generation Techniques**

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<b>How Monologue for Windows Works</b>	<b>2-3</b>
<b>Applications Using Monologue</b>	
<b>for Windows</b>	<b>2-4</b>

## ■ Speech Generation Techniques

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There are two commonly used techniques for generating speech. The first is table-based and works like a dictionary. Each word is stored in both a text version and a "sound" version. A lookup is performed on the text version and the corresponding "sound" version is spoken.

The second technique is rule-based. No text is stored and no voice recording is necessary, just the rules used to convert from text to speech. These rules are used to convert text to a set of "sound descriptors" which are in turn converted to digital patterns which describe an output signal we hear as speech.

### How Monologue for Windows Works

Monologue for Windows generally uses the rule-based method to generate speech. Because of this, Monologue for Windows can always pronounce each word it encounters. However, since English is an irregular language, words which don't always follow the rules will be mispronounced. For this reason, Monologue for Windows also uses the table-based method for "exceptions". You can enter your own exceptions which don't follow the phonetic rules of pronunciation using the Dictionary Manager.

Once an audio signal has been generated, the voice is directed to either the computer's internal speaker or a supported audio accessory.

Monologue for Windows has three distinct modes of operation: Clipboard, Excel and DDE Server. The mechanism for initiating speech differs somewhat for each mode.

#### Clipboard Mode

When Monologue for Windows is in Clipboard mode, all text input will be taken from the Windows "clipboard". The clipboard is an area in memory where data can be placed by one application and later read by another. This is the default mode of operation for Monologue for Windows. Data can be placed on the clipboard from most applications by selecting the data using the mouse, then choosing the "Copy" command. This command is usually located on the "Edit" menu of most Windows programs. When Monologue for Windows receives the command to begin speech, the contents of the clipboard will be retrieved, converted to speech and speech output will begin.

**Excel Mode**

When Monologue for Windows is in Excel mode, all input data will be extracted from the currently running copy of Microsoft Excel. This mode provides an added convenience since it bypasses the process of copying the selected data from the application to the clipboard. In this mode, the currently selected cell or cells will be retrieved from Excel when Monologue for Windows receives the command to begin speech, and the data will be converted to speech and speech output will begin.

**DDE Server Mode**

When Monologue for Windows is in DDE Server mode, all input data will be extracted from the DDE message stream. This is an advanced capability which allows various macro languages to initiate a DDE conversation with Monologue for Windows. Once a conversation is initiated, Monologue for Windows will speak any data sent to it by the other application.

**Applications Using Monologue for Windows**

Monologue for Windows is capable of speaking any text which is made available to it through any of the mechanisms described above. This means that it will work with any application which has the ability to place data in text format on the Windows clipboard or any application which has the ability to initiate a DDE conversation. Once installed, the speech capability is instantly available whenever you want it.

## ■ Chapter 3 Getting Started

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Diskette Backup	3-3
Using the INSTALL Program	3-3
Start Up the Speech Interface	3-4

## ■ Getting Started

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Monologue for Windows can be up and running in a few minutes by following these simple steps:

- If you have not already done so, please read Chapter 1 for a discussion of basic speech techniques.
- Make a backup copy of the Monologue for Windows diskette.
- Install Monologue for Windows using the INSTALL program.
- Start up the speech interface.
- Fill out and mail your registration card. If we don't have you in our files, we can't keep you up to date on enhancements and special offers.

Each of these simple steps except the first and last ones is discussed in more detail below.

### Diskette Backup

We recommend that you make a copy of your original diskette. To copy the diskette, start the Windows File Manager and use the "Format Diskette..." and "Copy Diskette..." options from the "Disk" menu. Alternately, you may use the DOS FORMAT and DISKCOPY commands.

For more information about using the Windows File Manager, refer to your Microsoft Windows manual. For more information about the DOS FORMAT and DISKCOPY commands, please refer to your DOS manual.

### Using the INSTALL Program

The Monologue for Windows disk contains a program, INSTALL, to ensure proper installation of the Monologue for Windows product files for your system.

The installation program is a Windows application and if you have not started Windows, you will need to do so before proceeding. To start the installation program, insert the diskette in the disk drive and use the "Run..." command from the Program Manager's File menu. Provide the dialog box with the drive letter and name of the install program i.e. "A:INSTALL" and press the "Enter" key.

The installation program will attempt to determine the correct configuration for your system. At any time, the user may override the recommended configuration by making an alternate choice as directed by the INSTALL program. Upon completion of the installation process the INSTALL program will attempt to create a program group for Monologue for Windows. This step will occur only if you are using the Windows Program Manager.



If you are using a "shell" program other than the Windows Program Manager, consult the publisher's documentation for information about making the Monologue for Windows programs available.

Users installing the Standard Environment may be presented with a dialog box alerting them that it will be necessary to "Restart Windows". It is important that this instruction be obeyed. Failure to do so may result in unpredictable behavior of Windows. It is recommended that you exit Windows once installation is completed. You may immediately restart Windows after you have exited to DOS.

This driver is necessary for Monologue for Windows to access the system hardware when running in 386 Enhanced Mode. If you are not running in this mode the message will not appear.

### **Start Up the Speech Interface**

Double click the Monologue for Windows icon to start the speech interface. The Monologue for Windows display will appear on your screen.

You may make selections for Speed, Pitch, Volume and Operational Mode using this screen. The selection of Operational Mode is very important since it will affect the mechanism used for subsequent speech requests. Be sure the selection is correct for the type of work you will be doing.

Refer to "How Monologue for Windows Works" in this manual for assistance in selection the correct Operational Mode. Note that at any time you may hear the consequences of the current settings by pressing the "Sample" button. Once you are satisfied with the settings, press the "OK" button. This will save the current settings as the defaults and make your selections active. Pressing the "Cancel" button will restore the setting to the last saved values.



Changes will not become effective until the "OK" button is pressed.

Now that Monologue for Windows has been configured to your taste, iconize Monologue for Windows either by pressing the "minimize" button or by selecting "Minimize" from the Monologue for Windows "System" menu. The minimize button is the small box with the downward pointing arrow in the upper right corner of the Monologue for Windows window. Note that Monologue for Windows has been reduced to an icon at the bottom of your screen. Monologue for Windows is now poised for action.

## **■ Chapter 4 Using Monologue For Windows**

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<b>Identifying the Data</b>	<b>4-3</b>
<b>Making the Data Available</b>	<b>4-3</b>
<b>Commanding the Data to Begin</b>	
<b>Speaking</b>	<b>4-3</b>
<b>Steps for Clipboard Use</b>	<b>4-4</b>
<b>Steps for Excel Use</b>	<b>4-4</b>
<b>Steps for DDE Server Use</b>	<b>4-4</b>

## ■ Using Monologue For Windows

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The process of speaking with Monologue for Windows is divided into three steps. The three steps are identifying the data, making the data available and commanding the data to begin speaking.

### **Identifying the Data**

Most applications use the mouse to select data. Generally this is done by moving the mouse while the left mouse button is held down. In most cases the data selected in this manner will be highlighted in some way. Some applications use different methods to indicate a selected data block. Consult your application's documentation for information specific to a particular application.

### **Making the Data Available**

If you have set Monologue for Windows to "Clipboard" mode you must now copy the selected data to the Windows clipboard. In most cases this is done by using the "Copy" command from the application's "Edit" menu. Your application may have a different method for performing this step. Consult your application's documentation for information specific to a particular application.

If you have set Monologue for Windows to "Excel" mode and your selection has been made within an Excel spreadsheet you can skip this step. Note that Excel mode is only designed for use with Microsoft Excel and when Monologue for Windows is in this mode only data selected from the current Excel spreadsheet will be spoken.

### **Commanding the Data to Begin Speaking**

Move the mouse cursor so that it is over the Monologue for Windows icon. Press the RIGHT mouse button to start speech. Once speech output is complete, control will be returned to your application.



Some applications run "maximized", that is, they use the full screen by default. In that case the Monologue for Windows icon will be obscured. In order to access the services of Monologue for Windows it will be necessary to resize the application's window so that the Monologue for Windows icon is accessible. This can generally be accomplished by either clicking on the application's "maximize" button or by selecting "Restore" from the application's "System" menu.

### **Steps for Clipboard Use**

The steps for using Clipboard mode are as follows:

1. Make sure Monologue for Windows is in "Clipboard" Mode.
2. Mark the data in the desired application.
3. Copy the data to the Clipboard using the "Edit/Copy" command.
4. Click the RIGHT mouse button over the Monologue for Windows icon.

### **Steps for Excel Use**

The steps for using the Excel mode are as follows:

1. Make sure Monologue for Windows is in "Excel" Mode.
2. Mark the desired cells within an Excel worksheet.
3. Click the RIGHT mouse button over the Monologue for Windows icon.

### **Steps for DDE Server Use**

The steps for using the DDE Server mode are as follows:

1. Make sure Monologue for Windows is in "DDE Server" Mode.
2. Start the application which will be the DDE Client.
3. Run the macro or script which initiates the DDE conversation.

## **■ Chapter 5 Advanced Operational Tips**

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<b>Starting Monologue for Windows</b>	<b>5-3</b>
<b>Excel vs. Clipboard Modes</b>	<b>5-3</b>
<b>Halting Speech in Progress</b>	<b>5-4</b>
<b>Creating Macros</b>	<b>5-4</b>
<b>Using a RAM Disk</b>	<b>5-4</b>

## ■ Advanced Operational Tips

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The tips outlined in this chapter are useful hints for improving the efficiency and performance of applications using Monologue for Windows.

### Starting Monologue for Windows

If your use of Monologue for Windows does not require frequent setting of the Volume, Speed, Pitch and Mode you will probably want to start Monologue for Windows as an icon automatically when Windows loads. This can be accomplished by modifying the "LOAD=" line in your WIN.INI file. If, on the other hand, you wish to start Monologue for Windows as a window, modify the "RUN=" line in your WIN.INI. In either case you should append "C:MONOLOGW\MONOLOGW.EXE" to the appropriate line of the WIN.INI file.



The example assumes that the Monologue for Windows program files are located on drive C: in the MONOLOGW directory. Be sure to use the correct drive and path for your system.

### Excel vs. Clipboard Modes

The Excel mode is provided as a convenience to users whose primary Windows use is Microsoft Excel. Excel mode provides the convenience of not requiring the extra step of copying the selected data to the clipboard. However, it does mean that if you wish to use Monologue for Windows with several applications you would need to switch between Clipboard and Excel modes as you activate different applications. When Monologue for Windows is in Excel mode, the contents of the Windows clipboard are not evaluated at all. However, if Excel is running Monologue for Windows, it will speak the current selection within Excel. This may lead to confusion and speech output which was not intended. For this reason, it is recommended that Excel mode only be used when Microsoft Excel will be the primary Windows application from which speech will be used.

### **Halting Speech in Progress**

On occasion you may find that you have instructed Monologue for Windows to speak some data only to realize that the data selection was incorrect or that an interruption makes the continued speech output undesirable. In these cases, speech output may be halted by placing the mouse cursor over the Monologue for Windows icon and clicking the LEFT mouse button.

Speech will halt at the end of the current data block. When Monologue for Windows is in Clipboard mode, speech is sent for output one sentence at a time. When Monologue for Windows is in Excel mode speech is sent for output one screen line at a time. As a result of the data blocking scheme, the cessation of output may be deferred as a result of the size of the current data block.

### **Creating Macros**

If your frequently-used Windows applications provide a macro language capability, you may wish to consider creating macros for the application to perform the task of speaking the marked text for you. By using either the DLL or DDE interfaces, you can create macros which will eliminate the need to locate the Monologue for Windows icon. This is handy for applications which operate most efficiently in maximized or full screen mode.

### **Using a RAM Disk**

If you are running Monologue for Windows from a network file server, the slower disk access times may result in either excessive latency as the speech data is being "constructed" or output occurring in halting broken cadence. If your system is equipped with enough memory, you may find that devoting a small portion of that memory to a RAM disk will substantially improve performance. For best results, be sure to use the RAMDRIVE.SYS utility provided with Windows or another Windows compatible RAM disk utility.

## **■ Chapter 6 Programming with Monologue**

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<b>DDE Speech Example</b>	<b>6-3</b>
<b>DLL Speech Example</b>	<b>6-5</b>
<b>Distribution Restrictions</b>	<b>6-6</b>

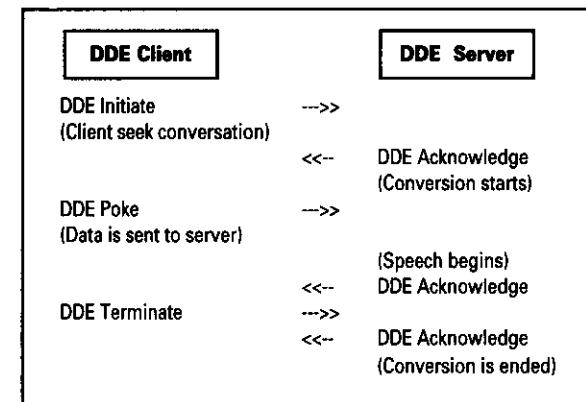
## ■ Programming with Monologue

Monologue for Windows provides both DDE and DLL programming interfaces. Using the capabilities provided by these interfaces, you can easily add the power of speech to either Windows applications of your own creation or existing Windows applications. The only requirement is that the application provide a mechanism for either DDE messaging or DLL calls.

The selection of the most appropriate mechanism will depend on your requirements and the capabilities of your programming environment. Generally speaking, the direct call DLL interface will provide the fastest most reliable link to the Monologue for Windows speech engine. While a tutorial in Windows programming techniques is beyond the scope of this manual, the following descriptions may be useful in determining the most appropriate interface for your use.

### DDE Speech Example

Monologue for Windows implements a DDE Server interface which allows other applications to initiate a DDE conversation and send data to Monologue for Windows for speaking. It is important to note that DDE is an arrangement where two applications cooperate in a message passing protocol. The DDE Server is actually acting as an agent for the DDE Client application. The following dialogue demonstrates a typical conversation between a DDE Client application and the Monologue for Windows DDE Server.



For the purpose of initiating a conversation, the client must supply two key pieces of information: the Application Name and the Topic. These two pieces of information are used by other Windows applications to determine whether the initiate request is intended for them. Monologue for Windows uses the Application Name MONOLOG and the Topic TALK. Once the conversation has started, Monologue for Windows will speak any data it received in subsequent DDE Poke messages. When the client is done speaking, it should send a DDE Terminate message to signal the end of the conversation. The following Ami Pro 1.2 macro illustrates all the basic steps required to initiate, maintain and terminate a DDE conversation with Monologue for Windows:

```

FUNCTION DDESAY()
'Macro demonstrating the Monologue DDE interface with Ami Pro.
child=DDEInitiate("MONOLOG","TALK")
IF (child=0)
  message("Can't Initiate DDE Conversation")
  EXIT FUNCTION
ENDIF
'Note the space in the Location field.
'The space is required for some reason.
DDEPoke(child,"", "Ami Pro calling Monologue via DDE link")
DDETerminate(child)
END FUNCTION

```

Here is a functionally identical macro for Microsoft Excel 3.0:

A	B
1	Excel calling Monologue via DDE link.
2	
3	SendChnl
4	SpeakData
5	=INITIATE("MONOLOG","TALK")
6	=POKE(SendChnl,"",B4)
7	=TERMINATE(SendChnl)
8	=RETURN()

While the internal function names will certainly be different for your application's macro language, these example demonstrates the basic characteristics of a macro which utilizes the Monologue for Windows DDE Server.

## DLL Speech Example

The provided DLL interface is the preferable mechanism for adding speech to programs which permit calls to external libraries and any personally developed Windows applications. The reason for this is that the interface is much more straightforward and inherently more reliable. Unlike the DDE interface which relies on message passing and its reliance on the server application to do its bidding, the DLL interface is a direct call to the Monologue for Windows speech engine. Because the DLL interface is direct to the speech engine, Monologue for Windows does not need to be started to access the services of the speech engine; thus reducing memory requirement.

Another advantage is that macros or programs using the DLL interface have the ability to control the pitch, volume and speed values used. Since this is accomplished without the intervention of Monologue for Windows, changes made in this way are local to the caller and independent of Monologue for Windows' settings.

The following paragraphs describe how to directly access the speech engine using **FB\_SPCH.DLL**. Basic speech capabilities are added to your programs using the entry points **OpenSpeech**, **Say**, and **CloseSpeech**. The interface to these entry points is described in terms of a 'C' language syntax in the following paragraphs. It is assumed that the reader is familiar with loading and accessing a Windows DLL from his/her programming environment.

If greater control over the speech functions is required (e.g. animated mouth synchronization, word sync) or if your application must continue running while speech is in progress, we recommend purchasing the ProVoice for Windows Developer's Toolkit.

The simplest text-to-speech functions can be performed with the following three routines:

<b>OpenSpeech</b>	initiate a session with the speech engine
<b>CloseSpeech</b>	close a session with the speech engine
<b>Say</b>	speak a buffer-full of text (does not return until all the text is spoken)

Function prototypes for these routines are as follows:

<b>void FAR PASCAL</b>	CloseSpeech (long SCB);
<b>long FAR PASCAL</b>	OpenSpeech (HWND hWnd, WORD mode, LPSTR voiceType);
<b>int FAR PASCAL</b>	Say (long SCB, LPSTR lpText);

The OpenSpeech routine must be called once and only once before any of the other speech routines can be used. It returns a *SpeechControlBlock* (SCB) which is required when calling any subsequent speech routines.

Before terminating, your application must call **CloseSpeech** for the SCB that was opened. Here is a sample of code that calls all three of these functions:

```
LONG lSCB;  
  
lSCB = OpenSpeech (0, 0, NULL);  
Say (lSCB, "Hello world.");  
Say (lSCB, "Hello again.");  
CloseSpeech (lSCB);
```

If you are using the Microsoft or Borland linkers, and wish to explicitly import these DLL functions, you will need to add the following lines to your .DEF file:

```
IMPORTS  
FB_SPCH.CLOSESPEECH  
FB_SPCH.OPENSPEECH  
FB_SPCH.SAY
```

If you are using Microsoft Visual Basic, you should use the following Declarations:

```
Declare Function OpenSpeech Lib "\monolog\fb_spch.dll"  
(ByVal hWnd%, ByVal mode%, ByVal voiceType%) As Long  
  
Declare Function CloseSpeech Lib "\monolog\fb_spch.dll"  
(ByVal lpSCB&) As Integer  
  
Declare Function Say Lib "\monolog\fb_spch.dll"  
(ByVal lpSCB&, ByVal phrase&) As Integer  
  
Global lpSCB As Long
```

## Distribution Restrictions

While you may use Monologue for Windows and the speech engine with your personally developed applications, you may NOT distribute these applications for profit or non-profit without securing a Speech Distribution license from First Byte. For licensing information contact us at (310) 793 0610.

# ■ Chapter 7 Using The Dictionary Manager

<b>Dictionary Concepts</b>	<b>7-3</b>
<b>Starting the Dictionary Manager</b>	<b>7-4</b>
<b>Leaving the Dictionary Manager</b>	<b>7-6</b>

## ■ Using The Dictionary Manager

The Monologue for Windows Dictionary Manager is a powerful interactive tool for managing the Monologue for Windows Exception Dictionary. With this tool you can add delete and modify entries in the dictionary while interactively trying various combinations of English and Phonetics constructs.

### Dictionary Concepts

Before using the Monologue for Windows Dictionary Manager, it is important to have an understanding of some basic concepts relating to the exception dictionary.

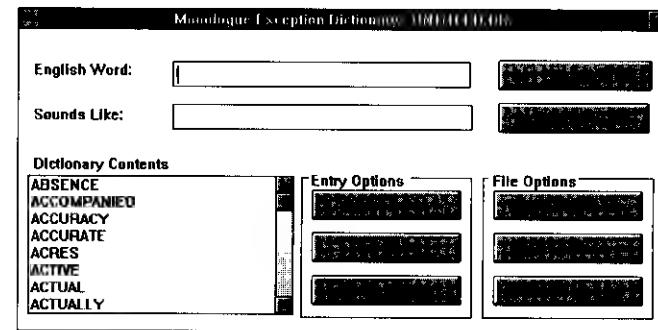


Figure 7-1: Exception Dictionary Dialog Box.

### Phonetic Strings

An exception dictionary consists of a sequence of English words and a string of replacement characters. These replacements ARE NOT ENGLISH. They are phonetic strings. Care must be exercised when manipulating phonetics since they are a narrowly defined set of characters which cannot necessarily be strung together in an arbitrary sequence. When you supply the Dictionary Manager with a "Sounds Like" string, which is composed of "misspelled English", the string will be converted to phonetics prior to storage. Refer to "First Byte Phonetic Codes" in this manual for a list of all the valid phonetic codes and modifiers.

### **Kernel Dictionary**

As discussed in "How Monologue for Windows Works", Monologue for Windows uses both the rule and table based methods of converting English text into phonetic codes. The kernel dictionary holds the table of words which are commonly used in English which the Monologue for Windows rule system will not correctly convert to phonetic codes. In addition, the kernel dictionary is the repository of words which contain special stress codes for improved naturalness of output. The kernel dictionary is located in the filename KERNEL.DIC. All dictionaries are based on this master dictionary, and its contents should generally not be modified or deleted. Making changes to entries in the master dictionary entries is not recommended.

### **Active Dictionary**

When the speech engine loads from disk, it looks for and loads a dictionary file. By default, this is KERNEL.DIC. The Dictionary Manager will allow you to specify your own dictionary as the default dictionary. The file thus specified will become the active dictionary until another selection is made using the Dictionary Manager.

### **Starting the Dictionary Manager**

Start the Dictionary Manager by double clicking on its icon in the Monologue for Windows program group of the Windows Program Manager. Once the program has started, you will be presented with its main window. Upon startup, the Kernel Dictionary will be loaded as the basis for a new dictionary.

### **Browsing the Dictionary**

The list box on the left side of the window allows you to browse through the entries in the dictionary. Selecting a word from the list box will cause it to be placed in the English Word and Sounds Like edit frames. Note that the "Sounds Like" data for existing dictionary entries will be displayed as a phonetic string.

### **Finding an Entry**

Enter the English word you are interested in finding in the "English Word" edit frame. Press the "Find Entry" button to locate the word in the dictionary file you are currently working with. If the word is found, its phonetics will be displayed in the "Sounds Like" edit frame and the word will be brought into view within the dictionary list box.

### **Adding an Entry**

Once you are satisfied with the results of your "Sounds Like" entry, you may add the word to the dictionary by pressing the "Add Entry" button. The word will be inserted into the dictionary and the word will be brought into view within the dictionary list box.

### **Deleting an Entry**

A word can be deleted from the dictionary by pressing the "Delete Entry" button when a dictionary entry is in the "English Word" edit frame. An entry may be brought into the edit frame by either using the "Find Entry" button or by selecting the word from the dictionary list box.

### **Testing an Entry**

You may at any time test the appropriateness of the selection by pressing either the "Say English Word" or "Say Sounds Like" trial button. The "Say English Word" button will cause the Dictionary Manager to speak the English word without correction. The "Say Sounds Like" button will cause the Dictionary Manager to speak the proposed replacement phonetics.

### **Saving your Work**

Once you have made all the desired changes to your dictionary, you may save it by pressing the "Save Dictionary" button. You will be presented with a standard "File Save" type dialog box. Enter the desired name for your file in the edit frame or select the name of an existing file from the files list box and press the "OK" button. Your dictionary file will be written to disk using the name provided.



The name KERNEL.DIC will not be accepted as a name for your dictionary file. This is done in order to protect the master dictionary so you may recover in the event that you inadvertently make changes to the master dictionary which needs to be "Un-Done".

### **Setting the Active Dictionary**

As noted above in the "Dictionary Concepts" section of this chapter, the speech engine looks for a particular dictionary file upon loading. The "Active Dictionary" button will allow you to define the dictionary file you wish to be used. Press the "Set Active Dictionary" button and you will be presented with a dialog box permitting the selection of an existing dictionary file as the new default dictionary. Make a selection from the Files list box and press "OK" to indicate approval for your selection. The dictionary file named will be immediately loaded by the speech engine and the name will be preserved as the file name to look for in the future.

### **Loading Another Dictionary**

Pressing the "Load Dictionary" button will allow you to edit another dictionary file. You will be presented with a "File Open" type dialog box from which you may select an existing file. Press "OK" to indicate approval and the selected dictionary file will be loaded into memory and will replace the previous data.

### **Changing Your Mind**

Sometimes you may find that some of the changes you have made were not well considered. The Dictionary Manager does not modify the disk files until an explicit "Save Dictionary" command is given. As a consequence, you may "undo" your changes by simply reloading the dictionary file using the "Load Dictionary" button.

**Dictionary File Location**

The "Load Dictionary", "Save Dictionary" and "Active Dictionary" options do not facilitate saving dictionary files in any directory other than the one in which Monologue for Windows was installed. All files related to speech need to be located in this directory.

**Leaving the Dictionary Manager**

You may exit the Dictionary Manager by selecting "Close" from the program's "System Menu".



You will not be prompted to save any changes which may not have been written to disk at the time you exit the application.

**■ Appendices**

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<b>Appendix A Problem Resolution</b>	<b>A-3</b>
<b>Appendix B FIRST BYTE Phonetics</b>	<b>A-5</b>
<b>Appendix C Technical Support</b>	<b>A-7</b>

## ■ Appendix A Problem Resolution

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In the unlikely event that you encounter difficulty with Monologue for Windows, please read through this Appendix to assist you in resolving the problem.

### First Things First

Before going any farther, perform the following simple checks to make sure your hardware and software are functioning properly together. Restart Windows and start Monologue for Windows as the only Windows application and press the "Sample" button. If you are able to hear the "Testing 1 2 3" message, it is safe to assume that the installation of Monologue for Windows is correct. If, on the other hand, either no output was heard or the program or Windows failed to proceed, it is likely that the installation options were chosen incorrectly.

If your system is running Windows with the Multimedia Extensions, you MUST NOT attempt to install Monologue for Windows using either the Sound Blaster or Standard Environment options. You can determine whether your system is equipped with the Multimedia Extensions by starting Windows and observing whether the Windows logo screen bears the legend "Windows 3.0 with Multimedia Extensions". If you see this message, you MUST install Monologue for Windows using the Multimedia Extensions Environment option.

If your installation options are in error, simply run the INSTALL program again making the correct selections.

### Common Problems

**Symptom** : The installation completed successfully but there is no apparent way to start Monologue for Windows.

**Probable Cause** : The installation program can only create a Program Group if you are using the Program Manager provided with Windows. If you are using an alternate "shell" program, consult the publisher's documentation for instructions to make Monologue for Windows available for execution.

**Symptom** : No speech is audible but the system does not seem to hang or otherwise fail.

**Probable Cause** : Your audio hardware volume level is inadequate. Adjust the volume control on Multimedia Audio / SB Audio Card.

- Symptom** : Speech is audible but pauses are occurring at inappropriate intervals.
- Probable Cause** : The disk on which Monologue for Windows is installed is not able to transfer data rapidly enough to keep up with the audio dial out rate. Monologue for Windows should NOT be installed on either a floppy drive or a network drive. The transfer rates on these devices may not be adequate for the purpose of speech continuity. Reinstall Monologue for Windows to a more appropriate device.
- Symptom** : An audible click occurs at a regular frequency during speech output.
- Probable Cause** : Your system's CPU speed is not quite fast enough to permit buffering without a "drop-out". This problem occurs most frequently with slower 386 and 386SX systems running in Enhanced Mode. The best solution is to run the system in Standard Mode where the interrupt latency is considerably shorter.
- Symptom** : Monologue for Windows seems to cause a problem with a network connection or serial communications in another Windows program.
- Probable Cause** : This problem is most frequently observed when using the Standard Environment option. As discussed in "System Requirements" in this manual, when this option is selected all other system activity is halted. This can cause serious problems for most communication software. Using either the Sound Blaster or Multimedia Environments should eliminate this problem.
- Symptom** : Speech is audible but seems to "stutter" or "hiccup" but seems to improve as speech goes on.
- Probable Cause** : This problem occurs when any of the following conditions exists:
- 1) The speech resources are not present in memory and the storage disk is unable to keep up with the speech output.
  - 2) Other applications use of memory is forcing an excessive amount of movement of data to-and-from disk.
  - 3) A marginal memory situation exists. Note that this problem is NOT fatal and will generally fix itself as the speech engine is repeatedly accessed. If you have loaded several large applications, you may wish to either close some less frequently used applications or add more memory to your system.

## ■ Appendix B FIRST BYTE Phonetics

This Appendix discusses the phonetic codes and modifiers used by First Byte.

### Phonetic Codes

The following table lists all the phonemes used by the First Byte system along with examples of the sound they represent.

PHONEME	EXAMPLE	PHONEME	EXAMPLE
IY	beet	r	red
IH	bit	w	wed
IX	decide	b	bed
EH	bet	d	dead
AE	bat	g	get
AH	but	v	yet
AX	about	DH	then
AA	cot	z	zen
UH	book	ZH	usual
UW	boot	f	fit
OW	boat	TH	thin
ER	bird	s	sin
AY	bite	SH	shin
EY	bait	h	him
OY	boy	p	pin
AW	bout	PX	spin
LX	fall	t	top
I	low	TX	stop
m	mow	DX	butter
n	no	k	kite
NG	sing	KX	sky
y	yes		

## Phonetic Modifiers

In addition to the phonemes listed in the phoneme table the following symbols are also supported:

SYMBOL	MEANING
[	Shorten the phoneme which follows
]	Lengthen the phoneme which follows
/	Increase pitch by 20 percent
-	Increase pitch by 30 percent and lengthen
*	Increase pitch by 20 percent and lengthen
-	Decrease pitch by 30 percent and shorten
nn (two digits)	Target pitch to this level
Sn (one digit)	Set speed to this level
Vn (one digit)	Set volume to this level

Note that pitch changes are propagated BACKWARD so that placing a pitch digit at the end of a phrase defines the ending pitch. The pitch change will be distributed backward to the last pitch target definition.

## ■ Appendix C Technical Support

If you need technical support, you can contact:

Inside U.S.A., Canada and South America, contact:

**CREATIVE LABS, INC. Technical Support**

1523 Cimarron Plaza,  
Stillwater, OK 74975.  
U.S.A.

 : (405) 742-6622

 : (405) 742-6633

 : (408) 428-6660

Operating Hours (Central Time)

Mon-Thu	:	9:00 am - 9:00 pm
Fri	:	9:00 am - 3:00 pm
Sat	:	9:00 am - 9:00 pm
Sun	:	12:00 pm - 9:00 pm
Public Holidays	:	Close

Outside U.S.A., Canada and South America, contact:

**CREATIVE TECHNOLOGY LTD Technical Support**

67 Ayer Rajah Crescent,  
#03-18.  
Singapore 0513.

 : (65) 870-0433

 : (65) 773-0353

 : (65) 776-2423

Operating Hours (Singapore Time)

Mon-Fri	:	9:00 am - 6:00 pm
Sat	:	9:00 am - 1:00 pm
Sun & Public Holidays	:	Close